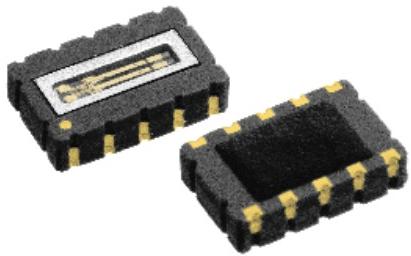


RV-2123-C2

Real Time Clock Module with SPI Bus

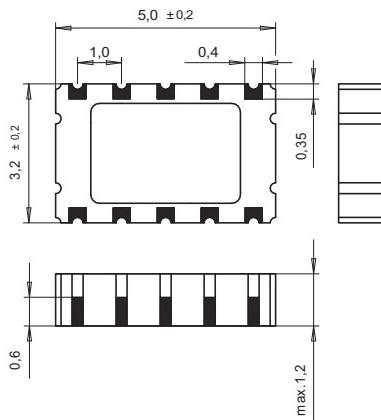


100% leadfree, RoHS - compliant

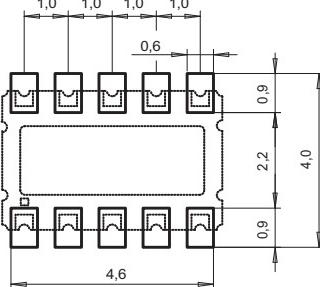
- Ultra low power consumption 130nA**
- Automotive qualified, according to AEC-Q200 Rev. C**
- Xtal integrated solution.**
- Frequency-Offset Trimming Register**
- Miniature SMT ceramic package**
- Very tight frequency tolerance**
- SPI Bus Interface (SCL up to 8 MHz)**
- Programmable Clock-output**
- Low aging**
- Time keeping mode down to 1.1 V**
- Programmable alarm, timer and interrupt functions**

DIMENSIONS

Package:



Recommended Solder Pad:



All dimensions in mm typical

DESCRIPTION:

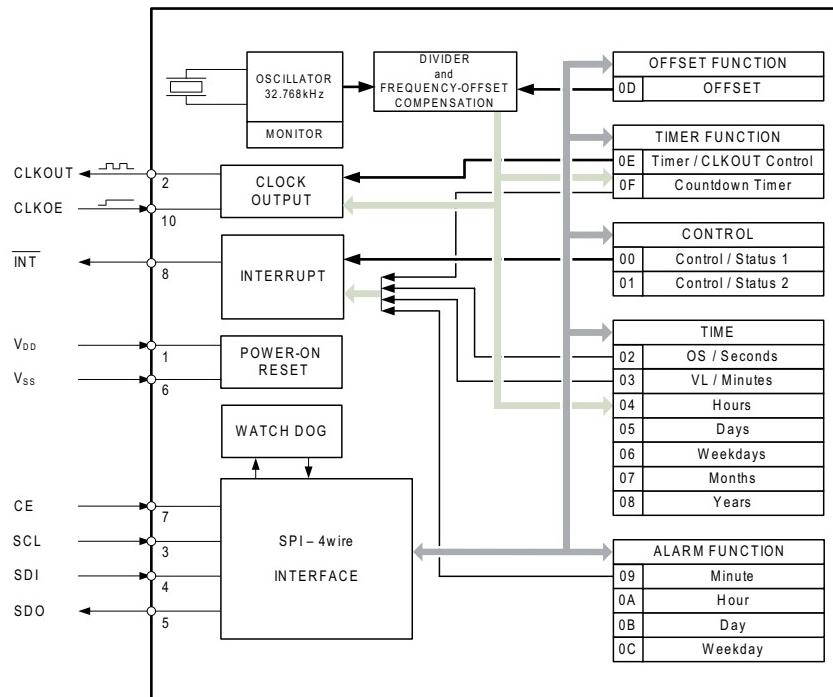
This RTC IC has been specially designed to achieve an ultra-low power consumption of typically 130nA @ V_{DD} 3.0V in time-keeping mode. The very small SMT ceramic-package combines the 32.768 kHz crystal unit with the CMOS-based oscillator and real-time-clock circuitry. The calendar function tracks year, month, date, and day-of-the-week with built-in century and leap-year flags. The clock function tracks minute and second in 24-hour format. Programmable alarm setting and universal timer functions increase flexibility.

For pick-and-place equipment, the parts are available in 12 mm tape:

7" (178 mm) reel with 1'000 parts

13" (330 mm) reel with 5'000 parts

BLOCK DIAGRAM:



ELECTRICAL CHARACTERISTICS AT 25°C:

	Symbol	Condition	Min.	Typ.	Max	Unit
Supply voltage	V _{DD}	SPI Bus Active	1.6		5.5	V
Supply voltage	V _{DD}	Time keeping	1.1		5.5	V
Current consumption during access	I _{DD}	fscl=1 MHz V _{DD} 3 V		30	80	µA
		fscl=4.5 MHz V _{DD} 3 V		250	400	µA
Current consumption Time keeping mode	I _{DDO}	fscl=0 Hz, V _{DD} 3 V		130	180	nA
		fscl=0 Hz, V _{DD} 1 V		110	160	nA
CLKOUT frequency		Programmable	32768...to...1			Hz
Frequency tolerance	ΔF/F	@ 25°C	±10 / ±20 ¹⁾			ppm
Aging first year max.	ΔF/F	@ 25°C	± 3			ppm
Frequency vs. temp.	ΔF/F _O	20 ≤ T ₀ ≤ 30	-0.035 ppm/ _{C°} (T - T ₀) ² ±10%			ppm

1) Tighter and wider frequency tolerances on request.

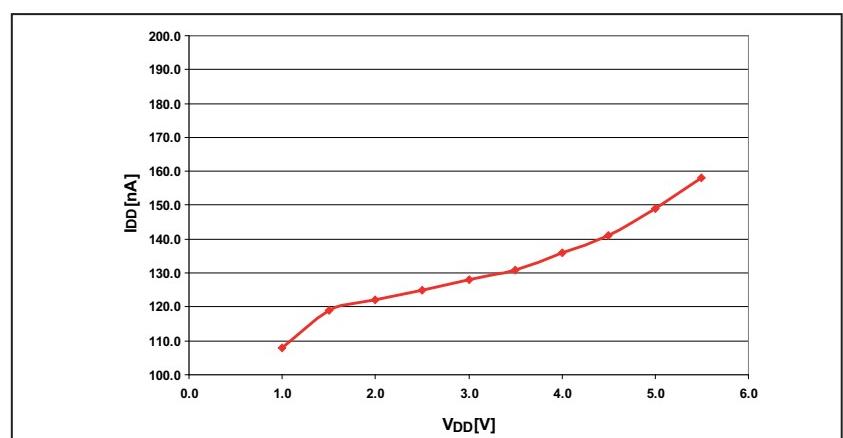
ENVIRONMENTAL CHARACTERISTICS:

		Conditions	Max. Dev.
Storage temp. range		-55 to +125°C	
TA Operating temperature range		-40 to +85°C	
Shock resistance	ΔF/F	5000 g, 0.3 ms, ½ sine	+/-5 ppm
Vibration resistance	ΔF/F	20 g / 10–2000 Hz	+/-5 ppm

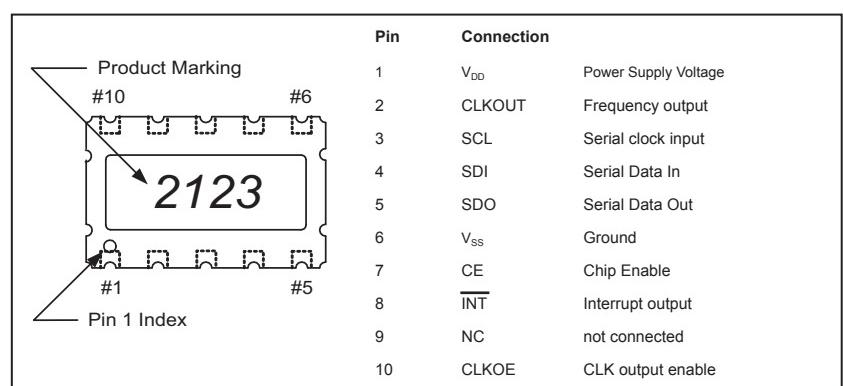
TERMINATIONS AND PROCESSING:

Package-Type	Termination	Processing
SON 10-pin	For SMD mounting Au plated pads	Reflow soldering 260°C / 20 s max.

CURRENT CONSUMPTION vs. POWER SUPPLY VOLTAGE:



PIN CONNECTIONS TOP VIEW:



All specifications subject to change without notice.



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